

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of claims:

1. (Currently Amended) Process for decorating the cylindrical wall of containers ~~characterised in that it comprises~~ comprising at least the following stages:

- a) moving mandrels (12, 13) are used mounted on a loop circuit, each mandrel having a diameter slightly less than the diameter of the cylindrical wall of the container and being mounted on a support capable of moving such that the axis of the mandrel remains parallel to a given direction D, the mandrel being mounted onto its support in such a way that it is able to rotate around its axis while resisting a force exerted perpendicular to said axis;
- b) each container is successively brought flush with a mandrel then fitted onto said mandrel;
- c) the mandrel thus covered with said container is brought into the vicinity of a impression roll (11) able to rotate around an axis parallel to said direction D;
- d) while it is being moved towards said impression roll, said mandrel is made to rotate around its axis;
- e) a transfer film bearing strip (14) is run into the gap between the impression roll (11) and the mandrel (13) covered with said container;
- f) the mandrel (13) and the impression roll (11) are brought into contact with each other, the cylindrical wall of the container and the surface of the impression roll being driven at a substantially equal tangential velocity, said contact translating into a force exerted by the impression roll on the mandrel through the transferable film bearing strip and the wall of the container;
- g) the bearing strip is then moved away from the surface of the container, with the result that the part of the transfer film remaining bonded to the container wall is detached from said bearing strip, thus bringing about the decoration;
- h) the mandrel and container unit is then moved away from the impression roll in order to leave room for the next mandrel;

~~said process being characterised in that:~~

wherein

A) said impression roll is driven, for example using a motor, typically an electric motor, in a continuous rotary motion around said axis, said axis being fixed;

B) the mandrel is made to rotate at a speed correlated with that of the impression roll such that when the mandrel comes to be flush with the impression roll, the tangential velocity of the cylindrical wall of the container in rotation is substantially equal to the tangential velocity of the surface of the impression roll;

C) the transfer film bearing strip is run into the gap between the impression roll and the mandrel covered with said container such that it moves at a linear velocity substantially equal to the their own tangential velocities.

2. (Original) Process according to claim 1 wherein said impression roll is a marking roll (11) provided with an etched surface.

3. (Original) Process according to claim 2 wherein the force applied by the raised parts of said etched surface causes the compression of a part of the transfer film which thins out and adheres to the wall of the cylindrical container and wherein, when the bearing strip is moved away from the surface of the container, the marked part of the transfer film which remains bonded to the container wall is detached from said bearing strip, thereby bringing about the decoration being implemented.

4. (Currently Amended) Process according to claim 2 ~~or 3~~ wherein said marking roll is hot and said transfer film is a thermal transfer film.

5. (Original) Process according to claim 4 wherein, when said bearing strip (12) has left the marking area because of the rotation of the mandrel (13), the bearing strip (12) is held against the cylindrical wall of the container long enough to allow the bearing strip and the marked transfer film to cool down to a temperature that makes the film easier to detach by cutting along the boundary between the marked area and the unmarked area.

6. (Currently Amended) Process according to ~~any one of~~ claims 1 ~~to~~ 5 wherein said mandrels are mounted on a turntable the axis of rotation of which is parallel to the axes of the mandrels.

7. (Original) Process according to claim 6 wherein said turntable operates stepwise, the mandrel finding itself at each stop flush with an area for handling or treating the container.

8. (Currently Amended) Process according to ~~any one of~~ claims 1 to 7 wherein the mandrel is made to rotate by acting such that it is able to reach the appropriate velocity before it reaches the marking area.

9. (Original) Process according to claim 8 wherein said impression roll (11) rotates at a constant speed of rotation.

10. (Currently Amended) Process according to ~~any one of~~ claims 2 to 9 wherein the position of the axis of the marking roll (11) is defined relative to the trajectory (20) of the mandrels such that when they come into contact with each other, a force is applied to the contact generatrix line that is weak enough for the mandrel to be able to resist mechanically and strong enough for the transfer film to be marked by the raised parts of the etched surface of the roll.

11. (Currently Amended) Process according to ~~any one of~~ claims 4 to 10 wherein the cylindrical body is a flexible tube, the cylindrical skirt of which has a thickness of between 250 and 600 microns, the marking temperature required by the hot stamping roll is between 80 and 250°C and the support force of the roll on the mandrel is between 2 N/mm and 40 N/mm.

12. (Currently Amended) Process according to ~~any one of~~ claims 4 to 11 wherein the bearing strip is held, after marking, against the cylindrical wall of the container over an aperture angle α over 20°, preferably over 30°.

13. (Currently Amended) Process according to ~~any one of~~ claims 4 to 12 wherein the bearing strip is held, after marking, against the cylindrical wall of the container, until the surface of the container reaches an average temperature below 80°, preferably below 60°.

14. (Currently Amended) Process according to ~~any one of~~ claims 4 to 13 wherein a drive device (31) of the bearing strip (14) is mounted downstream from the marking area such that the tension of the bearing strip is as low as possible as it leaves the marking area.

15. (Currently Amended) Process according to ~~any one of~~ claims 4 to 13 wherein, during marking, a device driving the bearing strip (14) is moved so that it enters the trajectory (20) of the mandrels allowing the bearing strip to be applied against the container wall, the contact being maintained over an angular aperture over 30°.

16. (Currently Amended) Process according to ~~any one of~~ claims 4 to 15 wherein a cold air flow is circulated over the bearing strip as it leaves the marking area.

17. (Currently Amended) Process according to ~~any one of~~ claims 2 to 16 wherein, after fitting the container onto the mandrel (12), the mandrel is rotated, an optical determination (40)

is made of a pre-marked index on said container and the rotation of the mandrel is calculated such that the cylindrical wall of the container comes into contact with the marking roll surface by presenting itself according to a preset angular position, with a tangential velocity substantially equal to the tangential velocity of the etched surface of the marking roll.

18. (Original) Process according to claim 17, wherein the device (40) allowing the optical determination of a pre-marked index of the decoration is complemented by a second optical device, typically a video camera, connected to a corrective information system, which through the use of image analysis software, allows the angular and axial position of the mandrel to be corrected.

19. Canceled

20. (Currently Amended) Device including a fixed plate placed opposite a turntable operating stepwise, said turntable being equipped with mandrels (12, 13) able to rotate around their axis, said axis being parallel to the axis of rotation of the plate, said mandrels being brought in succession during the rotation of the plate into several work areas provided on the fixed plate, these work areas including at least:

- a) a feed area where the cylindrical bodies are brought opposite a mandrel then fitted around said mandrel;
- b) an area for depositing or marking a decoration on the cylindrical wall of said containers including at least one impression roll (11) in continuous rotation around a fixed axis parallel to the axis of the plate, preferably with a constant speed of rotation, placed at a spot such that when a mandrel (13) comes to be flush with said roll, the latter comes into contact with said mandrel by exerting a support force distributed over a generatrix line, the mandrels being driven by rotation means, typically servomotors, making it possible to pass from nil tangential velocity to a tangential velocity equal to that of the impression roll after a length of time less than that corresponding to the movement of the container from one work area to the next;
- c) an area for removing the containers;

the device also including a device (30) for running a transfer film bearing strip (14), running the strip in the marking area, said device being provided with systems (31) allowing the tension of the strip to be controlled, particularly as it leaves the marking area.

21-22. Canceled

23. (Currently Amended) Device according to ~~any one of claims 20 to 22~~ applied to the decoration of cylindrical skirts of flexible tubes ~~characterised in that it involves a machine that includes~~ including a fixed plate placed opposite a turntable operating stepwise, said turntable being provided with mandrels (12, 13) having their axis parallel to the axis of rotation of the plate and able to rotate around their axis, said mandrels being brought in succession during the rotation (R) of the plate into a number of work areas provided on the fixed plate:

- said area for feeding flexible tubes and fitting the cylindrical skirts of said flexible tubes around the mandrel;
- an optional area for removing the sprue on the tube head;
- an optional area for putting a lid on the dispensing orifice;
- an optional area for capping;
- said marking area;
- an optional area for inspecting the decorations obtained;
- said area for removing the flexible tubes.

24. (Original) Device according to claim 23 wherein, directly upstream from the marking area, is provided an indexation area, where an optical tracking device (40) allows the angular position of a spot embodying a known particular point in the decoration to be detected and wherein the rotation of the mandrel (12) is actuated by a servomotor controlled using an algorithm which allows the necessary correction to bring the cylindrical body to the marking station at the right position and at the right speed of rotation to be calculated from data supplied by the optical tracking device (40).

25. (Original) Device according to claim 24 wherein the optical tracking device (40) is complemented by a second optical device, typically a video camera, connected to a corrective information system which, using image analysis software, allows the angular and axial position of the mandrel to be corrected.

26. (Currently Amended) Process for decorating the cylindrical walls of containers ~~characterised in that it comprises comprising~~ at least the following stages:

- a) moving mandrels (12, 13) are used mounted on a loop circuit, each mandrel having a diameter slightly less than the diameter of the cylindrical wall of the container and being mounted on a support capable of moving such that the axis of the mandrel remains parallel to a given direction D, the mandrel being mounted onto its support in such a way

that it is able to rotate around its axis while resisting a force exerted perpendicular to said axis;

- b) each container is successively brought flush with a mandrel then fitted onto said mandrel;
- c) the cylindrical wall of each container is printed in accordance with the required decoration with an ink or varnish promoting the adhesion of a transfer film;
- d) the mandrel thus covered with said container is brought into the vicinity of an impression roll, said roll being driven in a continuous rotary motion around a fixed axis parallel to said direction D;
- e) while it is being moved towards said impression roll, said mandrel is made to rotate at a speed correlated with that of the impression roll such that when the mandrel comes to be flush with the impression roll, the tangential velocity of the container wall in rotation is substantially equal to the tangential velocity of the surface of the impression roll;
- f) a transfer film bearing strip is run into the gap between the impression roll and the mandrel, such that when it arrives in said gap, it is moving at a linear velocity substantially equal to their own circumferential velocities;
- g) the mandrel and the impression roll are brought into contact with each other, said contact translating into a force exerted by the impression roll on the mandrel through the transfer film bearing strip and the cylindrical wall of the container, said force causing the compression of the transfer film, translating into an adhesion of a part of said transfer film to the printed part of the cylindrical container wall;
- h) the bearing strip is then moved away from the surface of the container, with the result that the part of the transfer film remaining bonded to the container wall is detached from said bearing strip, thus bringing about the decoration;
- i) the mandrel and container unit is then moved away from the roll in order to leave room for the next mandrel (12);

27. (Original) Process for decorating the cylindrical walls of containers according to claim 26 modified in that the cylindrical wall of each container is printed in accordance with the required decoration with an ink or varnish promoting the rejection of said transfer film and that said mandrel and said impression roll are brought into contact with each other, said contact translating into a force exerted by the impression roll on the mandrel through the transfer film bearing strip and the cylindrical wall of the container, said force causing the compression of the

transfer film, translating into an adhesion of a part of said transfer film to the unprinted part of the cylindrical container wall.

28. (Original) Process according to claim 27 wherein said transfer film has adhesive properties.

29. (Original) Process according to claim 28 wherein the impression roll is hot with the result that when the impression roll leans against the sleeve through the transfer film, the latter acquires said adhesive properties.